

Remarks/Argument:

Reconsideration is requested.

Claims 1, 3-9, 11-20, and 22-36 are pending. The independent claims consist of claims 1, 23 and 30. The Office Action dated June 28th, 2005 rejects all claims under the following grounds:

- Claims 1 and 23: rejected under 35 USC 101;
- Claims 1, 4-7, 9-12, 14-19, and 20-36: rejected under 35 USC 103(a) over Wenig, in view of *Parker v Flook*, 198 USPQ 193 (1978) and Yaginuma;
- Claims 3, 8, and 13: rejected under 35 USC 103(a) over Wenig, in view of *Parker v Flook*, 198 USPQ 193 (1978), Yaginuma and Hunt.

The cited Office Action represents a re-opening of prosecution following the Applicant's Appeal Brief filed on April 18, 2004. As compared to the previous final rejection which that Appeal Brief addressed, rejection of claims 1 and 23 under 35 USC 101 and the citation to *Parker v Flook* in rejecting other claims is new.

Claims 1 and 23 have been amended to recite "computer-generated graphical display" in order to arrange the claim in a specific technological art. Support for the term "graphical display" lies in claim 30. Support for the term "computer driven" lies in the written description at least at page 2, lines 19-23 (extracting and analyzing data from server databases and HTTP requests); page 3 line 18 to page 4 line 5 (system and method); page 4, lines 10-11 and page 6, lines 17-18 (interpret data of online stores); page 6, line 12 (visualization of an online store); page 9, lines 14-17 (sessionization process extracts sessions from Web server requests); and page 10, lines 18-22 (visualization is generated from step finder process). In view of the above, rejection of Claims 1 and 23 under 35 USC 101 is seen as overcome.

All claim rejections for obviousness re-state objections previously made, with the additional citation to *Parker v Flook*. Specifically, the rejections are seen to characterize the (non-visual) data manipulation cited in certain claim elements as obvious over specific prior art references, and then to assert that graphing that data is a post-solution activity analogous to that described in *Parker* (and rejected by the Court as not converting other recited steps into patentable subject

matter). The Office Action recites at page 7, for example, that the specific form of graphical representation is well known. The Applicant's response is two-fold: 1) *Parker* is not nearly as broad as the Examiner suggests; and 2) the specific graphical representation claimed illustrates a specific set of data that is novel and non-obvious over any asserted combination of art, as none recognize drop-offs (as that term has been consistently applied during prosecution). These are addressed below in turn.

Parker was decided in 1978, and though not overruled by *Diamond v Diehr*, 450 US 175 (1981), was substantially modified and limited by it only three years later. In *Diehr*, the Court restated that "Congress intended statutory subject matter to 'include anything under the sun that is made by man.'" *Diehr*, 450 U.S. at 182 (quoting S. Rep. No. 1979, 82d Cong., 2d Sess. 5 (1952), and H.R. Rep. No. 1923, 82d Cong., 2d Sess. 6 (1952)). Relevant to *Parker*, the *Diehr* Court stated: "Excluded from such patent protection," however, are "laws of nature, natural phenomena, and abstract ideas." *Diehr*, 450 U.S. at 185; accord, e.g., *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980); *Parker* 437 U.S. at 589; *Gottschalk v. Benson*, 409 U.S. 63, 67-68 (1972); *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948); *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*, 306 U.S. 86, 94 (1939). It is elementary that one cannot patent "a novel and useful mathematical formula," *Parker*, 437 U.S. at 585; electromagnetism or steam power, *Morse*, 56 U.S. (15 How.) at 113-114; or "[t]he qualities of ... bacteria, ... the heat of the sun, electricity, or the qualities of metals," *Funk*, 333 U.S. at 130; see *Le Roy*, 55 U.S. (14 How.) at 175.

The Office Action appears to reject the claims under 35 US 103 because they purportedly apply a mathematical formulation, i.e., the claimed graphical representation, to known data structures. Accepting *arguendo* that premise concerning the prior art, *Parker* is not so broad, especially following its clarification in *Diehr*. "It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection." *Diehr*, 450 U.S. at 187; accord *Parker*, 437 U.S. at 590 ("[A] process is not unpatentable simply because it contains a law of nature."); *Benson*, 409 U.S. at 67; *Funk*, 333 U.S. at 130; *Mackay*, 306 U.S. at 94; *Rubber-Tip Pencil Co.*, 87 U.S. (20 Wall.) at 507; *Le Roy*, 55 U.S. (14 How.) at 175. "[A] claim drawn to subject matter otherwise statutory does not

become non-statutory simply because it uses a mathematical formula" or other scientific principle. *Diehr*, 450 U.S. at 187. Instead, "[w]hile a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be." *Id.* at 188 (quoting *Mackay*, 306 U.S. at 94).

The present claims are to a method (claims 1, 3-9, 11-20, and 22-29) and to a system (claims 30-36). Respecting at least the method claims, "[t]he line between a patentable 'process' and an unpatentable 'principle' is not always clear." *Parker*, 437 U.S. at 589. In general, however, the "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines." *Diehr*, 450 U.S. 184 (quoting *Benson*, 409 U.S. at 70); see *Parker*, 437 U.S. at 588-589 & n.9; *Cochrane v. Deener*, 94 U.S. 780, 787-788 (1876). The present claims do not purport to represent a newly discovered mathematical formula, but as previously argued, to display a specific set of data in a manner that is particularly cognizable for the human observer. Regardless of the display, the prior art is not seen to cull an analogous set of data from the searched database.

"The rule that the discovery of a law of nature cannot be patented rests, not on the notion that natural phenomena are not processes, but rather on the more fundamental understanding that they are not the kind of 'discoveries' that the statute was enacted to protect." *Parker*, 437 U.S. at 593. Thus, it is necessary "to determine what type of discovery is sought to be patented." *Ibid.* As previously argued, graphically illustrating dropouts (data lines that intersect less than all axes and terminating where the shopping step ends, in the language of claim 1) provides an illustration of data that is not readily discernible from illustrations of data mining techniques of the cited art. As recited, the claimed invention provides a valuable approach to display information. Such claimed invention does not convert the inventors' original insight into solving the problem into merely a mathematical construct, but rather shows its utility. See, for example, claims 23 and 30.

The obviousness rejection appears to rest on the belief that graphically illustrating data which is according to the prior art already collected and stored is obvious given the holding of *Parker*. But *Parker* concerned a well-known catalytic process with the use of alarm limits to trigger

alarm limit values that are computed and readjusted by computers, which the Court held was “simply [] a new and presumably better method for calculating alarm limit values.” *Parker*, 437 U.S. at 589. Were the present invention merely a computer-generated graphical representation of what was already known but done by hand, as in *Parker*, the Applicant would have abandoned this application long ago, if ever pursuing it initially. But the prior art is not seen, in any combination, to illustrate drop-offs because any data set, returned from a data mining operation that is consistent with teachings of the cited art, would not exhibit a drop-off when graphed. The inventors recognized that drop-offs present substantially more useful data to analysts of online commerce activity. It is presented in a graphical form for better human cognition among a multiplicity of data lines as compared to tabular data.

Wenig recites that it is directed to a system and method that captures transmissions during a user session between a client and server (abstract). Requests from a client and responses by the server are captured and stored, which an analyzer may use to recreate the user session. The detailed description of Wenig teaches at col. 5, lines 25-30 that the user session is *recreated by generating the identical screens* that were viewed by the user (emphasis added). Alternative embodiments are seen to describe the various screens being generated offline or near real-time (col. 5, lines 33-39). Wenig’s teaching related to visually recreating a user session appears limited to repeating the sequence of actual web pages visited (Wenig, col. 5, lines 14-18; 25-29), with the possible addition of environmental data such as traffic volume (col. 5, line 66 to col. 6, line 9).

Yaginuma describes an apparatus and method for displaying the results of a data mining process as multi-dimensional data, such as on a parallel coordinate axis (abstract). A user interface generates an axis of the display corresponding to the result of the data mining process, adds the axis to the parallel coordinate axis and displays the result of the data mining process on the added axis. Yaginuma provides numerous drawings that the undersigned broadly categorizes into three groups: automobile specifications (figures 6-7, 12, 45-47), groceries (figures 27, 29, 32-33), and industry classifications (figures 34, 35, 37, 40, 42). [The text related to Figures 48-51 does not appear to identify specific underlying data]. Each of these appears to be displays of non-sequential data points in a static database that are independent of one another. Yaginuma

teaches displaying the *same* number of coordinate axes as fields detected (col. 6, lines 43-45); searching the entire record and obtaining values for *each* field (col. 6, lines 49-50); and connecting the data points with a line (col. 7, lines 1-2) (emphases added). These are explicit teachings away from a drop-out: the axes represent search criteria for all data returned from the search, so displayed data must satisfy each and every search criteria or it is never returned for display. In all instances, Yaginuma's data mining and graphing processes necessitate that a data set culled from a database would intersect all lines of a parallel coordinate graph when plotted.


Yaginuma's examples relating to automobile data appear to clearly represent that the parallel coordinate axes are search criteria, so only data satisfying each and every search criteria (e.g., that would cross every axis when plotted) is returned from a search of the underlying database. Yaginuma's examples relating to groceries imposes rule number, support, and degree of confidence axes in addition to the data points. As cited in the text at col. 15, lines 17-30, 'support value' and 'degree of confidence' show correlation between people who buy bread and butter and people who buy milk and jam. The 'rule number' corresponds to a combination between 'condition' (e.g., bread, butter) and 'result' (e.g., milk, jam). It is seen to be inherent in Yaginuma's teaching that only lines that intersect all axes of the display, including the additional 'rule number', 'support', and 'degree of confidence' axes that are not separately listed in the underlying data but added by Yaginuma in Figure 29, are plotted. This is true at least because any polygonal line that would drop-out would necessarily exhibit a support or degree of confidence of zero, and therefore would not be displayed because of the lack of correlation. For example, assume there is no correlation between people who buy bread and butter and people who buy milk and jam. Yaginuma would not display that data for the simple fact that there is no correlation and therefore no polygonal line to plot, just as there is no line in Yaginuma's Figure 29 showing a correlation between people who buy butter and milk and people who buy paper diapers and jam. Where the correlation (support or degree of confidence) of a searched condition/result pairing is zero, no polygonal line is plotted because there is no association between condition and result, and therefore no line that would connect them that could later drop out.

Using Yaginuma to mine and plot the database of Wenig yields data lines that necessarily intersect all axes of the Yaginuma parallel coordinate display. No reference is seen to recognize that there may be value in plotting some incomplete data paths against other complete data paths, or against a path that an online store proprietor might desire his customers to follow. Unlike the prior art, the present invention returns a different data set from the database. Unlike Yaginuma, that different set of data does not satisfy every search criteria that is represented by an axis of the graph, and thus exhibits a dropout when graphed. That the Examiner finds that the graphing of dropouts is obvious, absent any dropouts in the prior art, is evidence of how valuable it is to plot such a set of data in the claimed manner, not evidence of the prior art teachings. Those prior art teachings are not seen to teach or suggest returning data from a data mining operation that does not intersect each and every axis of a parallel coordinate axis graph. Hunt is not seen to alter that view of what the combined art suggests.

The Applicant has previously suggested that the Examiner assume any database, and use the prior art to mine and graph it as suggested by Yaginuma. This is not to be confrontational, but rather to propose an exercise that the undersigned believes will demonstrate that it is in the set of data returned from the data mining process itself, and not merely in the graphing of generic data-mining results, for which the prior art remains insufficient to render the pending claims obvious.

The Applicant respectfully requests that the Examiner reconsider the rejections in light of the above arguments, and the undersigned remains available to discuss via teleconference any remaining matters or any lack of clarity in the above remarks, at the Examiner's discretion.

Respectfully submitted:


Gerald J. Stanton
Reg. No.: 46,008

September 28, 2005
Date

Customer No.: 29683
HARRINGTON & SMITH, LLP
4 Research Drive
Shelton, CT 06484-6212

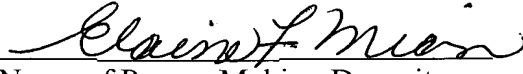
Application No. 09/653,888
Amendment dated September 28, 2005
Reply to Office Action dated June 28, 2005

Phone: (203) 925-9400
Facsimile: (203) 944-0245
Email: gstanton@hspatent.com

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

September 28, 2005
Date


Name of Person Making Deposit